

Mandarin *jiu*: exclusive, scalar, and minimal sufficiency

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Abstract

This study investigates both the semantics and the syntax of the Mandarin focus particle *jiu*. It observes that in addition to exclusive and scalar readings, *jiu* can give rise to non-exclusive readings, in particular, minimal sufficiency readings, when it precedes its associate, *contra* Hole (2004) and Liu (2016). This paper provides a unified analysis, aiming to account for all the observed uses of *jiu*. The main idea is that the exclusive inference of *jiu* is neutralized when it gets a DP-level interpretation, which is realized when the focused DP is moved to the topic position and combines with a silent determiner in syntax.

1 Introduction

The Mandarin focus particle *jiu* can function as an exclusive like English *only* and give rise to exclusive or scalar readings when it precedes its associate, as in (1). But it can also give rise to non-exclusive readings when it follows the associate as shown in (2).

- (1) a. **Jiu** [zhe ge chabei]_F yao 5 kuai qian.
jiu this CL teacup need 5 CL dollar
'Only this teacup costs 5 dollars.' exclusive
- b. John **jiu** shi yi ge [xuesheng]_F.
John jiu is one cl student
'John is only a student.' scalar
- (2) [Zhe ge chabei]_F **jiu** yao 5 kuai qian.
this CL teacup jiu need 5 CL dollar
'Just this teacup costs \$5.' non-exclusive

Importantly, when *jiu* is used in combination with another focus particle, it gives rise to non-exclusive readings even if it precedes the associate, as exemplified in (3).

- (3) a. **Jiu** **lian** [zhe ge chabei]_F **dou** yao 5 kuai qian.
 jiu lian this CL teacup dou need 5 CL dollar
 ‘Just this teacup costs 5 dollars.’ non-exclusive
- b. **Jiu** [zhe ge chabei]_F **jiu** yao 5 kuai qian.
 jiu this CL teacup jiu need 5 CL dollar
 ‘Just this teacup costs 5 dollars.’ non-exclusive

In (3a), *jiu* appears to the left of the *lian...dou* construction, which is similar to English *even*-sentences, and precedes the associate located between *lian* and *dou*. In (3b), two *jius* co-occur with the associate in between.

The type of reading in (2) and (3) can be classified as the famous minimal sufficiency reading (MSR), named by Grosz (2012). A working definition of the MSR is as follows:

The prejacent describes a relatively unlikely/surprising case for some event to happen or some state to hold, and the sentence also suggests that some other focus alternatives that are more likely/less surprising are also true. (Panizza & Sudo, 2020, 2)

Under Panizza & Sudo’s (2020) definition, (2) and (3) are arguably minimal sufficiency. The sentences in (2) and (3) can give rise to a reading which can be paraphrased as: It is relatively surprising that this teacup costs \$5. This reading is easy to get when the sentence comes as a complaint like “*everything is so overpriced in this store...*”. The reading also implies that anything that is more valuable than this teacup should also cost (at least) \$5.¹

It is worth noting that (2) has another reading that can be translated as: This teacup, *for example*, costs \$5. To get this *for-example*-reading, imagine that someone asks you which products in this store cost \$5. The *for-example*-reading is not an exclusive reading and can also be seen as a MSR. Assume that *this teacup* is mapped to the bottom of a scale that concerns questions such as “how difficult x is to find” or “what comes to the speaker’s mind

¹Based on real world knowledge, if an item costs \$5, anything that is more valuable than this item should cost at least \$5. Hence, the presupposition that anything that is more valuable than this teacup should also cost \$5 can only be satisfied by assuming that “cost \$5” means “cost *at least* \$5”.

first”. The *for-example*-reading can be captured as: It is relatively surprisingly easy to find something, namely this teacup, that costs \$5.

As I recognize the *for-example*-reading as a case of MSR, the table below (tentatively) summarizes the distribution of different readings of *jiu* in Mandarin.

		post-associate <i>jiu</i>	<i>lian...dou</i>
pre-associate <i>jiu</i>	exclusive, scalar	MSR	MSR
post-associate <i>jiu</i>	MSR	—	MSR(?)

When the pre-associate *jiu* occurs alone (e.g. (1)), it can give rise to exclusive and scalar readings, whereas when it occurs with another *jiu* or *lian...dou* (e.g. (3)), it gives rise to MSR. In contrast, the post-associate *jiu* (e.g. (2)) only gives rise to MSR. The question mark in the table means that the construction with both the post-associate *jiu* and *lian...dou* is less acceptable, as shown in (4). But if one is asked to force a reading, the only reading available should be the MSR. I discuss this issue in §3.3 and suggest that the problem of sentences in (4) is phonological.

- (4) a. ??**lian** [san ge ren]_F **dou jiu** tai dong le zhe jia gangqin.
 lian 3 CL person dou jiu lift move ASP this CL piano
 ‘Even just three people moved this piano.’
- b. ?**lian** [zhe jia gangqin]_F **dou** san ge ren **jiu** tai dong le.
 lian this CL piano dou 3 CL person jiu lift move ASP
 ‘Even this piano is something that is moved by just three people.’

In this paper I investigate the multiple uses of *jiu* and provide a unified computational analysis of it. I propose that the various readings of *jiu* are in fact closely connected to its different roles (i.e., adverbial vs. ad-nominal) in syntax and, more importantly, different interpretation levels (i.e., sentential vs. DP-internal) in semantics. Specifically, the post-associate *jiu* is always adverbial, and it gives rise to MSR when its associate is moved out of its scope (i.e., the associate is *not* c-commanded by *jiu*). When the associate stays within the scope of the adverbial *jiu*, it surfaces as a case of the pre-associate *jiu* and gives rise to exclusive readings. On the other hand, the other cases of the pre-associate *jiu* involve the ad-nominal *jiu* which functions as an ad-foc marker. When the ad-nominal *jiu* takes scope

within the DP, it gives rise to MSRs, otherwise it gets a sentence-level interpretation, which is exclusive.

The remainder of this paper is organized as follows. Section §2 is the review of previous studies of the MSR and *jiu*, followed by a discussion of the questions that remain to be answered. Then in section §3, I present my proposal concerning the syntactic derivation of constructions involving *jiu*. Section §4 shows the semantic composition of MSRs. Section §5 discusses a remaining question of the MSR in Mandarin. Section §6 concludes.

2 Theoretical background

2.1 MSRs

The semantics of exclusives, such as *only*, *just*, etc., as discussed by Horn (1969), is suggested to consist of two parts. The first part is the so-called positive component that the prejacent is true.² Some analyses also assume that the positive component is scalar and contains an “at least” part Beaver & Clark 2008; Coppock & Beaver 2014. The second is the negative component, which is often taken to be asserting that no alternative to the prejacent is true. For example, (5) presupposes that John passed the test, and asserts that *no one other than* John passed the test.

(5) Only John_F passed the test. exclusive

On the other hand, the scalar reading, also known as a rank-order reading, can be characterized as a case where the prejacent is ranked low with respect to certain contextual scale. The exclusive operator thus excludes those alternatives that are ranked higher than the prejacent (Coppock & Beaver, 2014). For example, (6) asserts that John is *nothing more than* a postdoc.

²There is debate over whether the positive component is presupposed or not. There are also different views on whether the positive component is the prejacent or something else (see Beaver & Clark 2008 for discussion). For the purpose of this paper, I assume that the prejacent is the positive component and it is presupposed.

- (6) John is only a postdoc_F. scalar

The MSR in English is often found with the DP-modifying *just*. Sentences in (7) are some typical examples.

- (7) a. Just [the thought of him]_F sends shivers down my spine. MSR
b. If just [two]_F people get on the boat, it will sink. MSR

Building on different analyses of exclusives, there exist various approaches to the MSR, which can be roughly divided into two categories: *just*-based and *even*-based. In a *just*-based analysis, the MSR is considered as a special case of either the exclusive or scalar reading of *just*. To account for the contrast between the MSR and a “normal” exclusive or scalar reading of *just*, there have been proposed three different analyses, which I will describe as the *lexical account* (Grosz, 2012), the *scope account* (Coppock & Beaver, 2014), and the *conditional-based account* (Coppock & Lindahl, 2015). The first two assume a scalar *just*, and the third assumes an exclusive *just*. On the other hand, in the *even*-based analysis proposed by Panizza & Sudo (2020), *just* is simply exclusive, and the minimal sufficiency flavor comes from a different source other than *just*, namely the covert *even*.

2.1.1 *Just*-based accounts

Giving what I will call the *lexical account*, Grosz (2012) posits two lexical entries for exclusive operators, one exclusive and one non-exclusive. He suggests that exclusive operators like *just* are semantically vacuous at the non-presuppositional level when they are used to derive a non-exclusive reading. The non-exclusive *only* or *just* simply presupposes that the prejacent is ranked relatively lower than most of its alternatives with respect to some contextual scale and asserts the same thing as the prejacent. However, Grosz’s (2012) analysis has received some criticisms. For example, it is unable to predict when the operator should be exclusive or non-exclusive and when it gives rise to MSRs (Panizza & Sudo, 2020).

In contrast, Coppock & Beaver (2014) propose that exclusive operators have the same general lexical entry, but they differ in several parameters, including the type parameter

(e.g. property-combining, quantifier-combining, etc.), the question parameter (e.g. what the current question under discussion is), and the strength ranking parameter (e.g. logical entailment, likelihood, etc.). They suggest that MSRs are derived when the NP-modifying *just* takes scope within the DP.

While Coppock & Beaver’s (2014) analysis is able to retain a unified semantics of exclusives, this analysis suffers an overgeneration problem since the VP part is not taken into account. In particular, their analysis predicts that sentences like *just one cat is in the room* can have a MSR that something that is equal to one cat and no more is in the room (Coppock & Lindahl, 2015; Panizza & Sudo, 2020).

To solve the overgeneration problem, a third account is proposed by Coppock & Lindahl (2015). They observe that when the NP modified by *just* plays a non-agent causer role, it can give rise to the MSR. They take into account this causativity factor and propose an analysis building on Kratzer (1998)’s analysis of conditionals.

They suggest that the MSR can be interpreted as *if you only add p and no more to f, must q*, where *f* is the modal base which assigns each world *w* a set of propositions about the facts. A sentence like *just the thought of him sends shivers down my spine* thus can be paraphrased as: if I assume only the existence thereof and no more, it must be the case that I feel shivers down my spine.

This conditional-based analysis is a *just*-based analysis as it assumes that the MSR is derived when the exclusive *just* interacts with causative conditionals. The distinct feature of this analysis is that *just* abstractly modifies an item that has no realization in syntax, namely the modal base *f*.

The third analysis is better than the previous two accounts as it takes into consideration the correlation between the MSR and the VP. But the causativity generalization undergenerates MSRs. Consider the examples in (8). Both sentences have a MSR.

- (8) a. Just [two]_F people can move the piano.
b. I need \$20 for just [the train to the airport]_F.

Sentence (8a) violates the non-agent causer restriction, and in (8b) the causativity require-

ment is not satisfied. The causativity generalization predicts that neither (8a) nor (8b) gives rise to MSRs, contrary to fact.

2.1.2 *Even*-based account

In a more recent study, Panizza & Sudo (2020) argue that the source of MSR is not the exclusive operator *just* but a covert *even*. They observe that the MSR is available only in cases where an overt *even* can be added felicitously to the sentence without changing the meaning.

- (9) a. (Even) just one cat will make John happy.
b. (#Even) just one cat is in the room.

In their analysis, *just* is exclusive but takes DP-level scope, whereas *even* takes sentential scope with both a scalar presupposition and an additive presupposition (Karttunen & Peters, 1979; Rooth, 1985; Kay, 1990). The scalar presupposition requires that the prejacent is relatively unlikely among its alternatives, and the additive presupposition requires that there is a true alternative that is not entailed by the prejacent (Panizza & Sudo, 2020).

One crucial component of their analysis is that the exclusivity inference of *just* is neutralized by the plurality-forming type-shift which is licensed when the predicate is non-distributive. Taking (9) as an example: The alternative sentences for *even* in both (9a) and (9b) have a subject DP in the form of ‘just ξ cat(s)’, where ξ is for numerals.

In (9a), with a non-distributive predicate, the subject DP of each alternative sentence undergoes the plurality-forming type-shift and changes ‘ ξ cat(s)’ to something like ‘a set of ξ cat(s)’. As *just* takes scope at DP-level, the alternative sentences for *even* in (9a) will be:

- (10) a. A set of just one cat will make John happy.
b. A set of just two cats will make John happy.
c. A set of just three cats will make John happy.
...

This set of alternatives is able to satisfy both the scalar and additive presupposition of *even* as no alternative sentence will be excluded. The MSR of (9a) can be captured as: It is relatively unlikely that something consists of only one cat will make John happy.

In contrast, in (9b), since DPs with distributive predicate cannot take the plurality-forming type-shift (Panizza & Sudo, 2020, 18), the alternatives for *even* are simply sentences in the form of ‘just ξ cats are in the room’.

- (11) a. Just one cat is in the room.
b. Just two cats are in the room.
c. Just three cats are in the room.

Although *just* does not take sentential scope, the alternatives in this set are mutually incompatible: If only one cat is in the room, then it must not be true that only two cats are in the room, vice versa. Hence, if the prejacent is true, all the other alternatives must be false, violating the additive presupposition of *even*. This accounts for why only (9a) and not (9b) is felicitous with an overt *even* and gives rise to the MSR.

In sum, despite different views on the source of MSRs, all analyses mentioned above, except for Grosz’s (2012), suggest that *just* takes DP-internal scope when deriving MSRs. While both the *conditional-based* analysis and the *even-based* analysis take into consideration the VP part, the latter is able to account for the uses of MSRs outside of causative contexts that the former cannot explain. It is possible that when the DP-internal *just* interacts with a causative predicate, it implies an *even-like* scale and gives rise to MSRs. But the reverse relation does not hold, namely MSRs are not necessarily derived from a causative predicative with DP-internal *just*. After all, it seems that MSRs do involve (a) a DP-internal exclusive and (b) an *even-like* presupposition, which can be produced by a causer subject or can come from *even* directly.

2.2 The semantics of *jiu*

Recall that *jiu* has various uses as discussed in Section 1. Hole (2004) distinguishes at least five use types of *jiu*: the parametric use, the modal use, the aspectual use, the emphatic use, and the focus use. One important generalization made in Hole 2004 is that the parametric use of *jiu* (i.e., post-associate *jiu*) interacts with a (usually) preceding focus or a contrastive topic, whereas the focus *jiu* (i.e., pre-associate *jiu*) interacts with foci which invariably follow it.

While Hole (2004) recognizes that the pre-associate *jiu* functions similarly to *only*, he suggests that the function of the post-associate *jiu* is to mark a negated universal quantification over alternatives (i.e., $\neg\forall$). Therefore, (2), repeated here as (12), can be interpreted as: This teacup costs \$5, and not all alternatives cost \$5.

- (12) [Zhe ge chabei]_F **jiu** yao 5 kuai qian.
 this CL teacup jiu need 5 CL dollar
 ‘Just this teacup costs \$5.’ MSR

Unlike Hole (2004), Liu (2016, 2017) proposes a unified analysis of *jiu* that aims to account for both uses. He suggests the following semantics of *jiu* wherein *jiu* negates all alternatives that asymmetrically entail the prejacent.

- (13) ‘Jiu *p*’ asserts:
 $\forall q \in C[q \subset p \rightarrow \neg q(w)]$

One distinct feature of Liu’s (2016) analysis is that *jiu* is able to accept different types of focus alternatives. When the alternative set is one such that the alternative sentences are in an entailment relation, the exclusivity inference will be successfully introduced. Otherwise the exclusivity inference is trivialized. I refer to the first kind of set as “exclusive set” and the second kind “non-exclusive” set. (14) is an example that gives rise to a reading which would be derived from an exclusive set like (16), and (15) is an example with a reading that could be derived from a non-exclusive set like (17).

- (14) Jiu [John]_F hui shuo fayu.
 jiu John can speak French
 ‘Only John can speak French.’ exclusive
- (15) [John]_F jiu hui shuo fayu.
 John jiu can speak French
 ‘John, for example, can speak French.’ MSR

Assume an alternative set of *John* like this: $\{j, b, j \oplus b \dots\}$. The alternative sentences in C are as follows:

- (16) a. j can speak French.
 b. b can speak French.
 c. $j \oplus b$ can speak French.
 ...

The exclusive *jiu* applies to the alternatives in C. As (c) in (16) asymmetrically entails the prejacent (a), it must be false, which further entails that (b) is false. Therefore the exclusive reading is derived as: John can speak French, \neg Bill can speak French. \neg John and Bill can speak French, etc. Hence John is the only person that can speak French.

Notice that this process of ruling out alternatives other than the prejacent requires that the predicate must be distributive. If we have a mixed predicate (Champollion, 2014) such as *lift the piano*, we must assume a silent distributive operator, otherwise the entailment from *John and Bill can lift the piano* to *John can lift the piano* is not obligatory.

On the other hand, if the alternative sentences do not stand in an entailment relation among each other, no alternative will be excluded. A non-exclusive set can be generated either by assuming that the focus alternatives to *John* include only atomic individuals or by assuming a group operator \uparrow (Landman, 1989) which will turn sums to atoms or groups (Liu, 2017). For example, assume an alternative set of *John* consisting of only atomic individuals like this: $\{j, b, m \dots\}$. The alternative sentences in C are as follows:

- (17) a. j can speak French.
 b. b can speak French.

c. m can speak French.

...

As the alternative sentences in (17) do not entail each other, the exclusive *jiu* applies vacuously. Thus, the derived reading is non-exclusive.

Under this analysis, the exclusive vs. non-exclusive reading is dependent on what type the focus alternative set is. To rule out the non-exclusive reading for the pre-associate *jiu* and the exclusive one for the post-associate *jiu*, Liu (2016) further posits a blocking mechanism.

Since the associates preceding *jiu* are contrastive topics, Liu (2016) assume that they carry an anti-exhaustive presupposition. An exclusive set will allow *jiu* to introduce the exclusivity inference, which is in conflict with the anti-exhaustive presupposition of contrastive topics. Hence in sentences like (15), with pre-*jiu* contrastive topics, the undesirable exclusive set will be ruled out, leaving only the non-exclusive set available. This explains why when the associate occurs before *jiu*, it only gives rise to non-exclusive readings.

As for the cases where the associate occurs after *jiu*, such as in (14), the associates are foci and lack the anti-exhaustive presupposition. Although the non-exclusive set is available for the post-*jiu* focus, the non-exclusive reading of (14) will be blocked by *Maximize Presupposition* (Heim, 1991). In particular, as both (14) and (15) are candidate forms for the same non-exclusive reading, the former form will be competed out by the latter as the latter contains more (hence stronger) presuppositions (Liu, 2016).

2.3 Problems of previous analyses

The existing analyses divide *jiu* into two categories according to its positional relation with the associate, namely the pre-associate *jiu*, i.e., the focus use of *jiu* to use Hole's term, and the post-associate *jiu*, i.e., parametric *jiu*. A lexical ambiguity analysis of *jiu* suggests that the pre-associate *jiu* is exclusive and the post-associate *jiu* is non-exclusive (Hole, 2004, also see Biq 1987; Lai 1999). In contrast, Liu's (2016) unified analysis assumes that the non-exclusive post-associate *jiu* form is derived from the exclusive pre-associate *jiu* form by

topicalizing the associate, as shown in (18).

- (18) a. pre-associate *jiu* form:
 [_{TP} *jiu* [this bottle of water] costs \$5].
- b. post-associate *jiu* form:
 [_{TopP} [this bottle of water]_i [_{TP} *jiu t_i* costs \$5]].

The previous studies, however, are unable to account for cases in (3), repeated in (19), where the pre-associate *jiu* gives rise to MSRs when it is used with another focus particle, including the post-associate *jiu*.

- (19) a. **Jiu lian** [zhe ge chabei]_F **dou** yao 5 kuai qian.
 jiu lian this CL teacup *dou* need 5 CL dollar
 ‘Just this teacup costs 5 dollars.’ MSR
- b. **Jiu** [zhe ge chabei]_F **jiu** yao 5 kuai qian.
 jiu this CL teacup *jiu* need 5 CL dollar
 ‘Just this teacup costs 5 dollars.’ MSR

In fact, the pre-associate *jiu* can give rise to MSRs by itself. As shown in (20), the sentence is ambiguous between an exclusive reading and a MSR.

- (20) *Jiu zhe yi jian dongxi yao 5 kuai qian.*
 jiu this one CL item need 5 CL dollar
 ‘This is the only item that costs 5 dollars.’ exclusive
- ‘This item alone costs 5 dollars.’ MSR

The MSRs of (19) and (20) strongly suggest that the previous descriptive generalization of the pre-associate *jiu* being exclusive is incorrect. In particular, the lexical ambiguity analysis fails to predict the MSR of (19) and (20) as it simply treats the pre-associate *jiu* as a strong exclusive that applies to propositions. As for Liu’s (2016) account, it does predict the existence of MSRs with pre-associate *jiu*, and with an additional assumption that *lian...dou* contains some other presuppositions, such as the scalar presupposition and the additive presupposition, the blocking mechanism will not apply to *jiu lian...dou* constructions. Hence

Liu’s (2016) analysis can account for the MSR in (19a). However, his analysis is unable to explain the co-occurrence of two *jiu*s, and the blocking mechanism will still block the MSR in (20) as the sentence involves just the pre-associate *jiu*.

Another problem that is challenging for the previous analyses is the obligatory preposing of the focused DP when it is modified by *jiu* directly. As shown in (21), when *jiu* occurs in an ad-nominal position, the whole phrase must be fronted.

- (21) a. *John bu xihuan **jiu zhexue_F**.
 John not like jiu philosophy
 ‘John only doesn’t like philosophy.’
- b. **Jiu zhexue_i** [TP John bu xihuan t_i].
 jiu philosophy John not like
 ‘John only doesn’t like philosophy.’

As far as I know, the previous studies of *jiu* only focus on the relative positions between *jiu* and its associate. The question of where exactly *jiu* should attach and how it can be moved have not been addressed in the literature.³

In the following sections, I present a unified analysis of *jiu*. My analysis is not only able to account for the MSRs of *jiu*, but can also solve these three problems (i.e., the co-occurrence of multiple focus particles, MSRs with pre-associate *jiu*, and the obligatory preposing of the focused phrase).

3 Proposal: ad-foc and adverbial *jiu*

Following Coppock & Beaver (2014) and Panizza & Sudo (2020), I suggest that MSRs are derived when the exclusive operator takes scope within the focused DP. The question is: when does *jiu* take DP-internal scope? To answer this question, I adopt Hole’s (2017) analysis of focus-sensitive particles. Hole proposes a three-way division of focus particles, namely adverbial particles, ad-foc marker particles, and scalarity marker particles, and suggests that they are hosted by Scalarity Phrases (ScalP). I propose that *jiu* can be used

³While Hole (2004) briefly mentions that *jiu* can occur in the ad-nominal position, he does not discuss the obligatory preposing.

as either an adverbial particle or an ad-foc marker. When it is ad-foc, it can take DP-internal scope.

Let's start with adverbial particles. As suggested by their name, adverbial particles behave like adverbs and head the Scalarity Phrase (ScalP) (Hole, 2017). Mandarin adverbial particles are found in various positions. The adverbial *zhi* 'only' may occur either to the left of the modal verb *yinggai* 'should' or to the right of it, whereas the adverbial *shenzhi* 'even' normally occurs to the left of the modal verb. The focus particle *jiu* is found in both positions like *zhi*.

Ad-foc markers are always associated with scalarity markers. Ad-foc markers left attach to and form a constituent with the focused phrase. They move together to the specifier position of the ScalP, which is headed by the scalarity marker. Below are some patterns of associating ad-foc and scalarity markers in Mandarin (Hole, 2017):

	ad-foc marker	scolarity marker	alternative type
(22)	lian	ye, dou	'even'-like
	zhiyou	cai	'only'-like

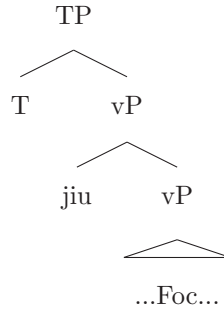
3.1 Adverbial *jiu*

When *jiu* is used as an adverbial, it always left-adjoins to (probably) the vP/VoiceP or higher. As shown in (23), with the adverbial *jiu*, every word in the scope of the focus particle, i.e., every word c-commanded by the focus particle, can be in focus, giving rise to different exclusive readings. This also suggests that the adverbial *jiu* can have in-situ foci.

- (23)
- a. John *jiu* kanjian_F le yi ge ren.
 John *jiu* see ASP one CL person
 'John did nothing but SAW one person.'
 - b. John *jiu* kanjian le yi_F ge ren.
 John *jiu* see ASP one CL person
 'John didn't see any other number but ONE person.'
 - c. John *jiu* kanjian le yi ge ren_F.
 John *jiu* see ASP one CL person
 'John didn't see anything but one PERSON.'

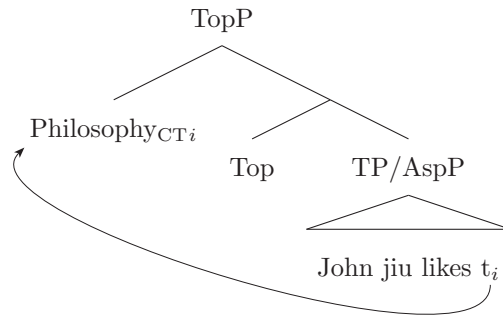
The basic structure for the adverbial *jiu* with an exclusive reading is as follows:

(24) Exclusive



When the focus is moved out of the scope of the adverbial *jiu* through topicalization, the focus becomes a contrastive topic (CT) and gives rise to MSRs. The structure for the adverbial *jiu* with a MSR is as follows:

(25) Non-exclusive



The subject, on the other hand, can never be in focus with the vP-level adverbial *jiu* as it always surfaces in a position outside of the scope of *jiu*. One may wonder if the adverbial *jiu* can attach to a higher position such as TP and associate with the subject. This is a possible view, but an unnecessary one.

One possible argument for a TP-level adverbial *jiu* comes from sentences like (26). In (26), the subject can associate with *jiu*, not as a focus but as a contrastive topic, and gives rise to the MSR.

(26) John_{CT} jiu kanjian le yi ge ren.
 John jiu see ASP one CL person
 ‘John, for example, have seen one person.’

MSR

One way to account for this case is to assume that the associated subject *John* is moved out of the scope of the TP-level *jiu*. But this is not necessary at all since constructions like (27) can be seen as cases where the vP-level *jiu* backwards associates with the topic like English *even*.

Furthermore, when *jiu* is in the sentence-initial position, only the subject but not the other words can be in focus, as shown in (27).

- (27) a. Jiu John_F kanjian le yi ge ren.
 jiu John see ASP one CL person
 ‘Only John saw one person.’
- b. #Jiu John kanjian le yi_F ge ren.
 jiu John see ASP one CL person
 Intended: ‘John only saw ONE person.’

If the adverbial *jiu* can attach to TP-level, then something must be said to account for the contrast between the vP-level *jiu* and the TP-level *jiu*, namely the vP-level *jiu* can associate with everything it c-commands, but the TP-level *jiu* cannot. We are hence forced to posit certain additional stipulative requirements along the following lines: When *jiu* attaches to TP, it only associates with the phrase in the Spec-TP position, where as when it attaches to vP, everything it c-commands can be the associate.

Nevertheless, even if the adverbial *jiu* can adjoin to a position as high as TP, it is still impossible to derive constructions like (21b), repeated here as (28), where the focused DP is preposed out of the TP but still under *jiu*.

- (28) Jiu zhexue_i [TP John bu xihuan t_i].
 jiu philosophy John not like
 ‘John doesn’t like only philosophy.’

A possible solution is to allow *jiu* to attach to a position even higher than TP, such as FP. With obligatory movement of the focus to the Spec-FP position, (28) can be derived, as shown in (29).

- (29) [_{FP} Jiu zhexue_{F_i} [_{TP} John bu xihuan t_i]].
 jiu philosophy John not like

However, such an analysis runs into immediate problem. The structure in (29) predicts that the focused phrase *philosophy* can be further topicalized, deriving (30) as below with a non-exclusive reading. However, this prediction is not borne out.

- (30) *_{[TopP zhexue_i [FP jiu t_i [TP John bu xihuan t_i]]]}.
 philosophy jiu t John not like t
 Intended: Philosophy, John doesn't like it.

It seems that any analysis involving only the adverbial *jiu* is not able to account for cases like (28) satisfactorily. I take this as an empirical argument that shows there is an ad-nominal *jiu* in Mandarin. I treat the ad-nominal *jiu* as an ad-foc marker and suggest that all sentence-initial *jius*, including the subject-modifying one in (27), can be treated in the same fashion.

3.2 Ad-foc *jiu*

An ad-foc marker attaches to the focused phrase and moves with the focus as a constituent. The DP-modifying exclusive *zhiyou* ‘only_{adj}’ is a representative of this class of particles:

- (31) a. *zhiyou beef* John doesn't eat.
 b. John *zhiyou beef* doesn't eat.
 c. *John doesn't eat *zhiyou beef*.
 d. *John *zhiyou* doesn't eat *beef*.

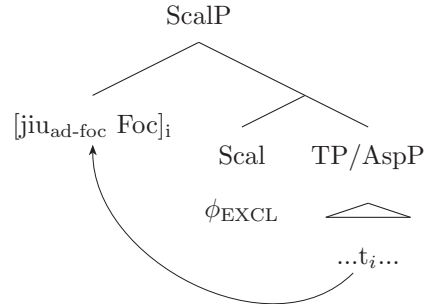
The contrast between (31a), (31b) and (31c) shows that unlike the adverbial *jiu* which allows in-situ foci, with ad-foc markers the focused phrase must be preposed. The constituency of the ad-foc marker *zhiyou* and the focus is evident by (31d).

The distribution of the ad-foc *jiu* largely overlaps with *zhiyou*. In (31a) and (31b), *jiu* and *zhiyou* are basically interchangeable. What's more, the sentence ordering of (31b) is not predicted by the adverbial *jiu*. This is another piece of evidence for the ad-foc use of *jiu*.

I propose that when being used as an ad-foc marker, *jiu* is associated with a covert

scalarity marker ϕ_{EXCL} . By positing that ϕ_{EXCL} has a [+EPP] feature, we are able to capture the obligatory preposing of the focused phrase when *jiu* left-attaches to it. A structure involving the ad-foc *jiu* and ϕ_{EXCL} is shown in (32).

(32) Exclusive



The focused phrase can be further moved to the topic position. In that case, the sentence gives rise to MSRs. The topic status of the *jiu*-marked phrase can be signaled by a following pause, as shown in (33).

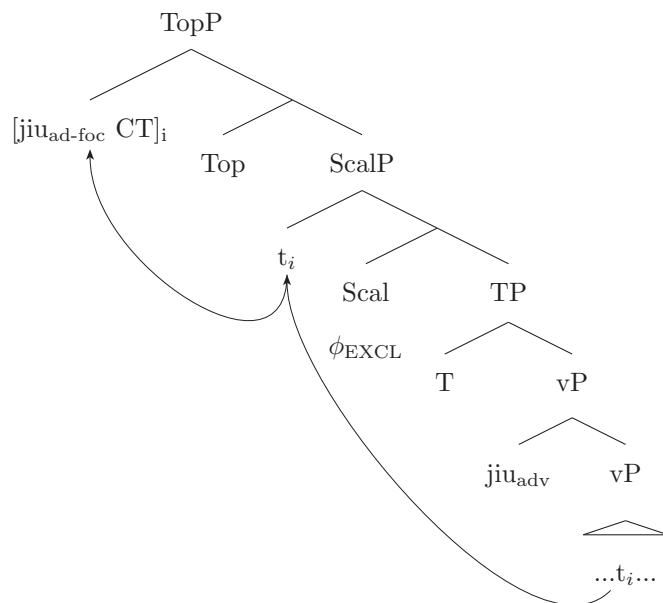
(33) Jiu zhe ge chabei, (ta) yao 5 kuai.
 Jiu this CL teacup (it) need 5 dollar
 ‘Just this teacup costs \$5.’ MSR

3.3 Applications

Having the distinction between the adverbial and the ad-foc *jiu*, the derivation of sentences with multiple focus particles is straightforward: They all involve the ad-foc marker *jiu*. I suggest that in addition to the movement triggered by the scalarity head, the focus phrase is always moved to the topic position in multiple focus particle constructions. This explains why multiple focus particle constructions only give rise to MSRs.⁴ The structure below illustrates the syntactic derivation of constructions where two *jius* occur in one sentence.

⁴As the topicalization in multiple focus constructions does not change the linear order of the sentence, one may wonder whether it is necessary. Following Fox’s (2000) economy principles, I suggest that the topicalization of the focused phrase is required as it changes the semantic interpretation of the sentence, namely from exclusive to non-exclusive.

(34) The derivation of the double-*jiu* construction:



The structure in (34) can also be used to account for a set of parallel constructions that involve a DP-modifying exclusive operator, as shown below. The exclusives *guang*, *jin*, *dan*, when modifying the DP, are similar to English post-nominal *alone*.

(35) *guang/jin/dan zhe ge chabei jiu yao 5 kuai qian.*
 this CL teacup jiu need 5 CL dollar
 ‘This teacup alone costs \$5.’ MSR

Similarly, the *jiu* in *jiu lian...dou* constructions is treated as the ad-foc one.⁵ In light of the fact that adverbial *shenzhi* ‘even’ is usually syntactically higher than adverbial *zhi* ‘only’ in Mandarin (Hole, 2017), I assume that a ScalP_{even} (a ScalP headed by a marker that is associated with *even* foci) is also syntactically higher than a ScalP_{only} (a ScalP headed by

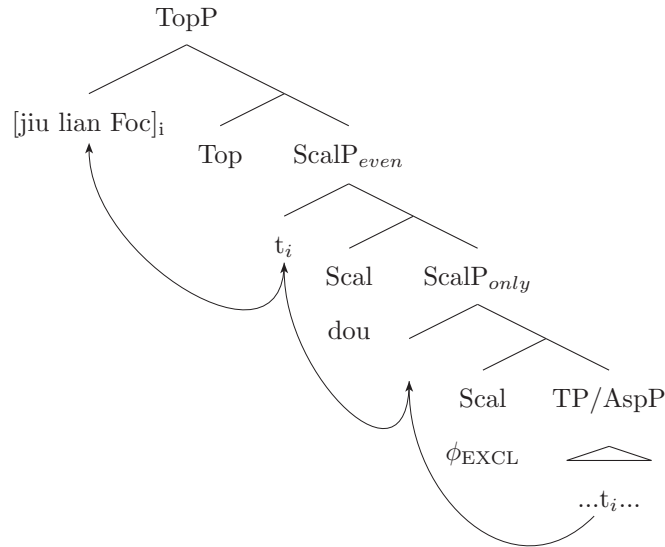
⁵One argument that might be against this assumption is that *lian...dou* can co-occur with the adverbial *shenzhi* ‘even’ but not the ad-foc marker *zhiyou* ‘only’.

- (i) a. *shenzhi lian beef John dou doesn’t eat.*
- b. **zhiyou lian beef John dou doesn’t eat.*

Probably *zhiyou* is not allowed in (ib) because it is associated with the scalarity marker *cai*, which semantically conflicts with *dou*. Also, assuming *jiu* is adverbial in *lian...dou* constructions will bring even more severe problems. However, I choose to ignore this potential problem as it is beyond the focus of this paper.

a marker that is associated with *only* foci). This gives the following structure for the *jiu lian...dou* construction in Mandarin.

(36) The derivation of the *jiu lian...dou* construction:



Somehow the ad-foc *jiu* but not the other ad-foc markers can freely co-occur with another ad-foc marker. The ad-foc *jiu* can co-occur with not only *lian...dou* but also the exclusive *zhiyou...cai*.

(37) Jiu zhiyou niurou John cai bu chi.
 jiu zhiyou beef John cai not eat
 John only doesn't eat beef.

Although it remains unclear to me why *jiu* is special among its peers, the proposed structure is able to account for all cases with multiple focus particles. The table below lists all possible surface structures that are predicted by the structure, and all of them are attested:

		Scal _{even}	Scal _{only}	vP
[jiu beef] _i	John	–	ϕ _{EXCL}	eats t _i
[lian beef] _i	John	dou	–	eats t _i
[jiu lian beef] _i	John	dou	ϕ _{EXCL}	eats t _i
[jiu zhiyou beef] _i	John	–	cai	eats t _i

Recall that it is less acceptable for the post-associate *jiu* to co-occur with *lian...dou*. Under the current analysis, the post-associate *jiu* is in fact the adverbial *jiu*, and nothing should disallow the co-occurrence of the adverbial *jiu* and *lian...dou*. I suggest that syntactically the adverbial *jiu* can co-occur with *lian...dou*. Compare the examples in (4), repeated here in (38).

- (38) a. ??lian san ge ren **dou** [TP t_i **jiu** tai dong le zhe jia gangqin].
lian 3 CL person dou t jiu lift move ASP this CL piano
‘Even just three people moved this piano.’
- b. ?lian zhe jia gangqin **dou** [TP san ge ren **jiu** tai dong le t_i].
lian this CL piano dou 3 CL person jiu lift move ASP t
‘Even this piano is something that is moved by just three people.’

The sentence is largely improved when the adverbial *jiu* associates with the object DP and is separated from *dou* by the subject, as in (38b). In contrast, when the subject is fronted, leaving *jiu* next to *dou*, the acceptability decreases, as in (38a). Hence instead of banning such constructions, I suggest that when the adverbial *jiu* and *lian...dou* co-occur, one of them is usually phonologically unpronounced, especially when they appear right next to each other.

4 Deriving MSR

So far, I have shown that there are two syntactically different *jius*. In this section, I illustrate how to derive the MSRs of those constructions with a unified semantics of *jiu*. I assume with Liu (2016, 2017) that *jiu* asserts the negation of stronger alternatives to the prejacent—alternatives that asymmetrically entail the prejacent.

(39) $\text{jiu} \rightsquigarrow \lambda p. \lambda w : p(w) = 1. \forall q \in C[q \subset p \rightarrow \neg q(w)]$

Liu (2016) also proposes that *jiu* presupposes a condition on the alternative set: *Jiu*'s associate is ranked the lowest with respect to certain scale, either a contextual scale or a part-whole scale. In this paper, I keep the scalar presupposition of *jiu*.

One argument for this scalar presupposition, as pointed out by Liu, is that the non-exclusive *jiu*-sentence cannot follow another non-exclusive *jiu*-sentence, as illustrated in sequence (40).

- (40) a. John *jiu hui shuo fayu*.
 John *jiu* can speak French
 ‘John can speak French.’
- b. #Bill (ye) *jiu hui*.
 Bill also *jiu* can
 ‘Bill also can.’

In a scalar analysis, the anomaly of (40b) is viewed as a result of the low-on-scale presupposition of *jiu*. With *John* being ranked the lowest on certain contextual scale in the first sentence, such as how easy to think of, the second sentence violates the presupposition as it tries to map *Bill* to the bottom on the same scale.

It is worth noting that *jiu* differs from the other scalar focus particle *lian...dou* in a way that the scalar presupposition of *jiu* relies on a ranking over alternatives to the DP, not over sentential alternatives. What’s more, when *jiu* and *lian...dou* occur together, they must use scales of different dimensions. As shown in (41), it is fine to have sentences where the *jiu*-sentence is followed by a *lian...dou* one.

- (41) John *jiu hui*. Bill *ye hui*. Lian Frank *dou hui*.
 John *jiu* can Bill also can *lian* Frank *dou* can
 ‘John can. Bill also can. Even Frank can.’

It is generally accepted that *lian...dou* carries a scalar presupposition which presupposes that the prejacent is less likely to be true among its alternatives (Liu, 2017; Xiang, 2020).⁶

⁶The views on the source of this scalar presupposition differ slightly in the literature. Liu (2017) just assumes the scalar presupposition of *dou* and defines it in likelihood. Whereas Xiang (2020) suggests that

If *jiu* in (41) has the same scalar presupposition defined in likelihood, it will conflict with the scalar presupposition of *lian...dou*, incorrectly predicting (41) to be bad.

To deal with this problem, we need to assume that *jiu* and *lian...dou* in (41) make reference to two different scales. On the one hand, *jiu* maps *John* onto the bottom of a scale such as “how difficult x to find”. On the other hand, *lian...dou* poses ranking over the sentence-level alternatives in terms of likelihood. Hence (41) expresses that John, which is not difficult to find, can speak French. Bill also can. And even Frank can speak French, which is relatively surprising.

Recall that in certain contexts, sentences with just *jiu* like (40a) can imply a ranking in terms of likelihood. There are two views on which scales *jiu* can attach to that are compatible with this data. The first one is that *jiu* can associate with a scale defined in likelihood, but this option is ruled out with it co-occurs with *dou* which can only associate with a likelihood scale. The second one is simply that *jiu* does not associate with a likelihood scale, and those sentences involving a likelihood ranking contain a covert *dou*. Either way is compatible with the current analysis.

To implement the DP-level scope of *jiu*, I adopt Coppock & Beaver’s (2014) analysis of DP-internal readings. In particular, I assume that there is a silent determiner in syntax, which can be hosted in the TopP. When the silent determiner combines with *jiu*, it triggers the application of the Geach rule⁷ to the propositional *jiu* and turns it into a property-modifier of type $\langle\langle e, p \rangle, \langle e, p \rangle\rangle$, as shown in (42). The general lexical entry for the propositional *jiu*, as defined in (39), is short-handed as JIU.

$$(42) \quad jiu_{\text{ad-foc}} \rightsquigarrow \lambda P. \lambda x. \text{JIU}(P(x))$$

On the other hand, the NP that is modified by the ad-foc *jiu*, following Coppock & Beaver (2014), is further shifted to a property (type $\langle e, p \rangle$) through a sequence of type-

the scalar implication is derived from the non-vacuity presupposition. When *dou* associates with *lian*, the ordering scale that is used to define the (non)excludable-alternative set is reduced from logical strength to likelihood. That being said, there is overall agreement that *lian ... dou* introduces a low-in-likelihood inference.

⁷A type-shift operation which converts a function of type $\langle a, b \rangle$ to type $\langle\langle c, a \rangle, \langle c, b \rangle\rangle$. See Coppock & Beaver 2014 for discussion.

shifts, including the LIFT-shift and the BE-shift (Partee, 1983/1997). The motivation for the sequence of type-shifts is to provide the appropriate type of argument for the property-modifier jiu , which undergoes a shift forced by the silent determiner.

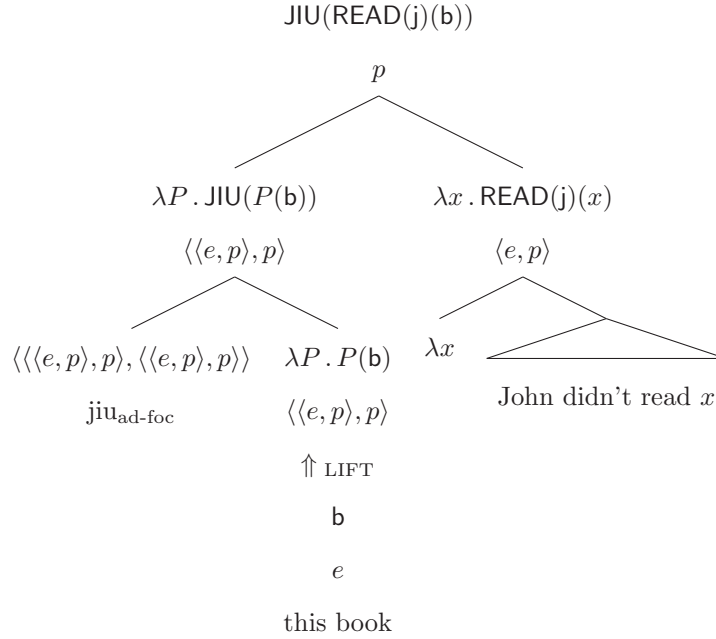
$$(43) \quad \text{LIFT} = j \mapsto \lambda P . P(j)$$

$$\text{BE} = G \mapsto \lambda x . G(\lambda y [y = x])$$

$$(44) \quad \begin{array}{c} \langle \langle e, p \rangle, p \rangle \\ \swarrow \quad \searrow \\ \exists \quad \langle e, p \rangle \\ \quad \swarrow \quad \searrow \\ \langle \langle e, p \rangle, \langle e, p \rangle \rangle \quad \langle e, p \rangle \\ \text{jiu}_{\text{ad-foc}} \quad \uparrow \text{BE} \\ \quad \quad \quad \langle \langle e, p \rangle, p \rangle \\ \quad \quad \quad \uparrow \text{LIFT} \\ \quad \quad \quad e \end{array}$$

The movement of the focused phrase to topic position is optional for single jiu constructions. If the focused phrase is *not* moved to a topic position, it will not combine with the silent determiner. In that case, we get a sentence-level interpretation of jiu . The semantic computation of the sentence “Jiu this book John didn’t read” is illustrated as below:

(45)



Again, the propositional *jiu* cannot combine with the type e argument directly, nor can the whole *jiu*-phrase combine with the predicate denoted by the VP. To solve this semantic type crisis, we can apply the Geach rule to the propositional *jiu* like before. This time, as there is no silent determiner, we must apply the Geach rule twice so that we can get a function whose output is a quantifier that can take the predicate denoted by the VP as the argument. This gives us a quantifier-modifier *jiu* of type $\langle \langle \langle e, p \rangle, p \rangle, \langle \langle e, p \rangle, p \rangle \rangle$.

4.1 Interacting with *lian...dou*

Let's now look at the *jiu lian...dou* construction which only gives rise to MSR. In addition to the scalar presupposition defined in terms of likelihood, I also assume that *lian...dou* has the additive presupposition that presupposes there is another true alternative.⁸

⁸The additive presupposition is not very obvious. In a context where a group of kids were jumping across the brook. John jumped. But no one else did. The teacher tried to encourage the kids and said:

- (i) Lian John dou neng tiao guo qu.
 lian John dou can jump over go
 'Even John can jump over (the brook).'

The sentence is judged okay even if no one other than John jumped across the brook. This is suggested to be the evidence that *lian...dou* does not have the additive presupposition. However, the additive presupposition

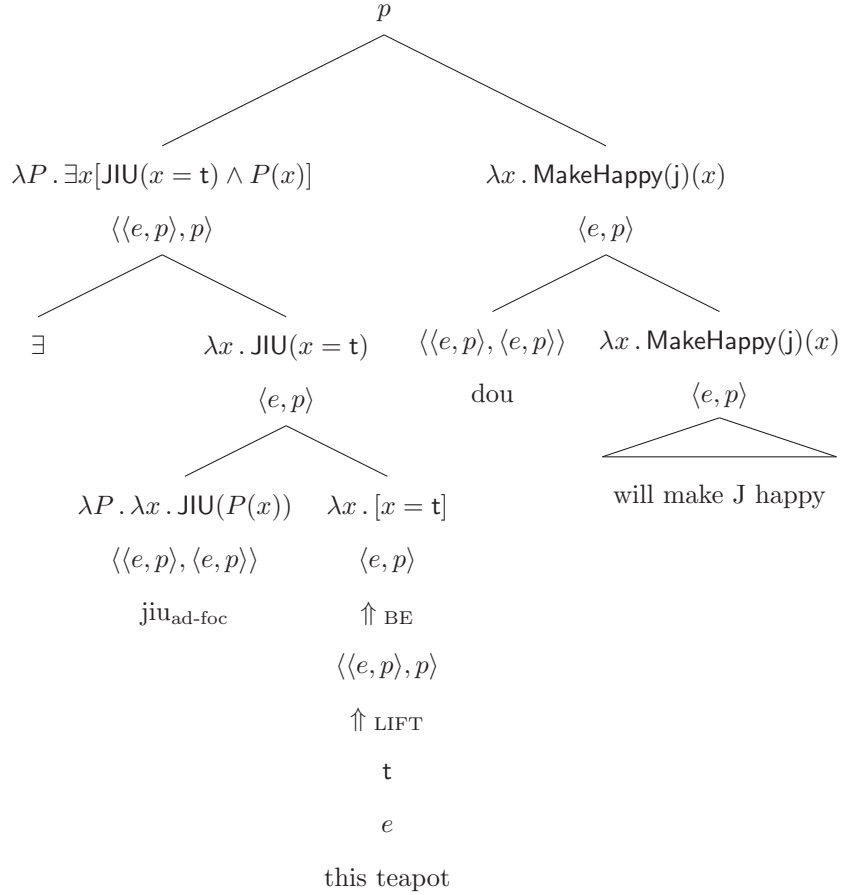
$$(46) \quad dou \rightsquigarrow \lambda p. \lambda w : \exists q \in C[q(w) \wedge q >_{likely} p] . p(w) = 1$$

The prejacent is less likely than at least one of its true alternatives.

Take (47) as an example for the semantic computation of the MSR. The structure is shown in (48). For the purpose of consistency in this paper, I take *dou* as a property-modifier as well. It can also be simply a propositional operator of type $\langle p, p \rangle$. Nothing hinges on this.

- (47) Jiu lian the ge chabei dou hui rang John kaixin.
 jiu lian this CL teacup dou will make John happy
 ‘Even just this teacup will make John happy.’

$$(48) \quad \exists x[\text{JIU}(x = t) \wedge \text{MakeHappy}(j)(x)]$$



can be locally satisfied in a context where the teacher is promoting a state of affair.

Not only the additive component, but also the existential quantification in the scalar presupposition is controversial in the literature. For the purpose of this paper, I will ignore these debates.

Following Panizza & Sudo (2020), with the assumption that the same focus can be associated with multiple focus particles, *jiu* and *dou* share the same associate in (47). Recall that we assume *jiu* can accept different types of focus alternatives. There are two possible alternative sets for *this teacup*. One is exclusive in the sense that the alternative sentences built on this set of focus alternatives hold an entailment relation among each other. The other one is non-exclusive such that there is no entailment relation. (49a) and (49b) instantiate these two types of focus alternative set respectively.

- (49) a. {this teacup, this teacup \oplus this plate, this teacup \oplus this plate \oplus this spoon, ...}
 b. { \uparrow (this teacup), \uparrow (this teacup \oplus this plate), \uparrow (this teacup \oplus this plate \oplus this spoon), ...}

If the associate has a set of focus alternatives like (49a), the alternatives for *dou* will be like below, with the preadjacent underlined. Since *lian* is purely syntactic (also see Xiang 2020), I will ignore it for simplicity.

(50)

$$\text{Alt}(\phi)_{dou} = \left\{ \begin{array}{l} \underline{\text{jiu } t \text{ will make J happy.}} \\ \text{jiu } t \oplus p \text{ will make J happy.} \\ \text{jiu } \text{this } t \oplus p \oplus s \text{ will make J happy.} \end{array} \right\}$$

For each *jiu*-sentence in (50), *jiu* applies to the DP internally. Under our current analysis, the silent determiner applies to the *jiu*-phrase, resulting in the whole phrase denoting a quantifier with an existential force eventually. This turns the subject in each alternative sentence in (50) as the following:

- (51) something that is equal to t ($\neg t \oplus p$, $\neg t \oplus p \oplus s$, ...),
 something that is equal to $t \oplus p$ ($\neg t \oplus p \oplus s$, ...),
 ...

If there exists something that is equal to being this teacup and this plate, it does not entail

that there exists something that is equivalent to this teacup. Hence *jiu* applies vacuously here. As a result, the alternatives for *dou* will be like (52).

$$(52) \quad \text{Alt}(\phi)_{dou} = \left\{ \begin{array}{l} \exists x[\text{JIU}(x = t) \wedge \text{MAKEHAPPY}(j)(x)] \\ \exists x[\text{JIU}(x = t \oplus p) \wedge \text{MAKEHAPPY}(j)(x)] \\ \exists x[\text{JIU}(x = t \oplus p \oplus s) \wedge \text{MAKEHAPPY}(j)(x)] \end{array} \right\}$$

This set is able to satisfy both the scalar and additive presupposition of *dou*: As the alternatives in (52) do not entail each other, nor do they contradict each other, it is possible to find at least one true alternative that is more likely than the prejacent. We hence successfully derive the MSR in (47): It is relatively unlikely that something that is equal to this teacup will make John happy.

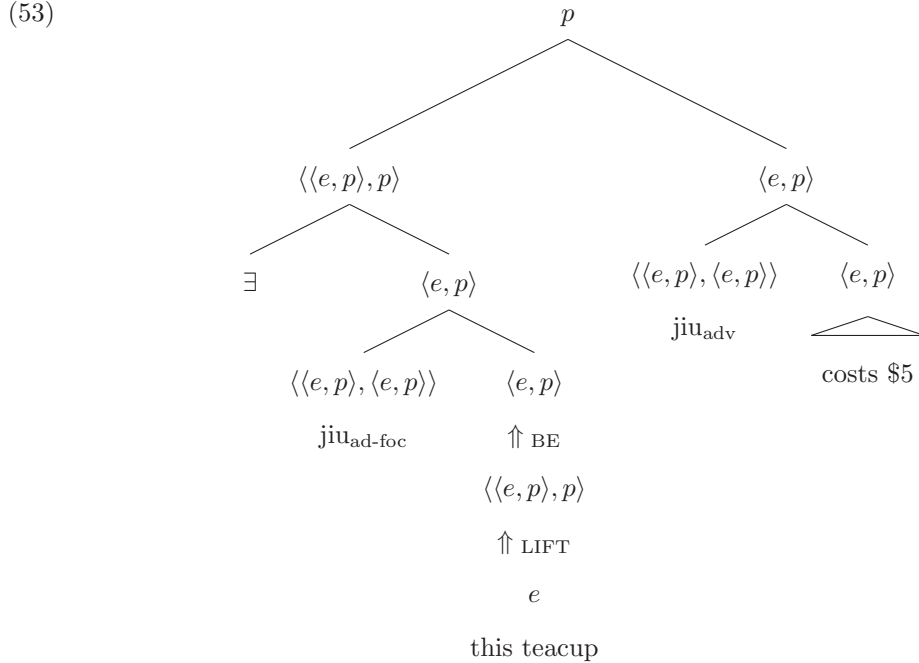
Now what about a set like (49b)? The focus alternatives in this set do not result a set of alternative sentences with an entailment relation. Hence the exclusivity inference of *jiu* will just apply vacuously, giving rise to MSRs.

It is worth noting that there exist several MSRs with subtle differences in (47). The first type of MSR can be paraphrased with *with nothing else*: It is relatively unlikely that something that is equal to this teacup with nothing else costs \$5. The other types of MSR, depending on the contextual scale, can be paraphrased as: It is relatively unlikely that something that is equal to this teacup, which is relatively unremarkable, costs \$5, etc. I suggest that the difference flavors can be connected to different focus alternative sets of the associate. When the focus alternative set for *this teacup* is one like (49a) where *this teacup* is the bottom element (Panizza & Sudo, 2020), it gives rise to the *with-nothing-else*-reading. When the alternatives to *this teacup* are individuals like in(49b), we get the other types of MSR.

4.2 Just *jius*

As for the adverbial *jiu*, since its function is limited to VP-modifying usages, the adverbial *jiu* can also be a property-modifier which simply combines with the predicate of $\langle e, p \rangle$. Together

with the ad-foc *jiu*, the interpretation of a double-*jiu* sentence is illustrated below:



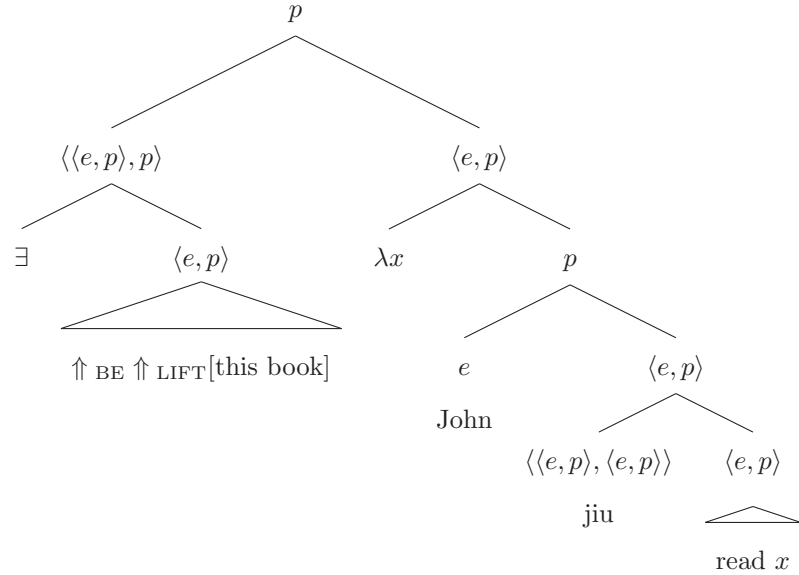
The sentence can be roughly interpreted as follows:

(54) $\exists x[\text{JIU}(x = \text{this teacup}) \wedge \text{COST}\$5(x)]$

With the exclusive inference introduced inside the DP, we are able to capture the MSR as: there is x such that x is equivalent to this teapot, and x costs five dollars.

The derivation with just the adverbial *jiu* following its associate is more straightforward than the above ones. When the focused phrase is moved to the topic position, it will combine with the silent determiner. This again will force the DP to undergo the sequence of type-shifts, as shown below.

(55) $\exists x[(x = \text{this book}) \wedge \text{READ}(j)(x)]$



With the silent determiner neutralizing the exclusive inference, we successfully derive the MSRs for the sentence *This book, John jiu read* in (55). Notice that my analysis does not rely on the additional assumption that topics carry an anti-exhaustive presupposition.⁹ In my analysis, either with an exclusive alternative set or a non-exclusive one, when the associate combines with the silent determiner in syntax, it only gives rise to non-exclusive readings.

4.3 Further discussion

To quickly summarize my analysis here: I propose that *jiu* can be either adverbial or ad-nominal. When *jiu* is ad-nominal, it functions as an ad-foc marker which is left-attached to the focused DP. The ad-foc marker *jiu* is associated with a scalarity head which is [+EPP],

⁹My analysis is not against the anti-exhaustive presupposition. But whether contrastive topics are anti-exhaustive or not is still unclear to me. For arguments supporting the anti-exhaustive presupposition, see Liu 2016. There is also evidence against the anti-exhaustive presupposition: In a context where Mary believed no one came to the party last night, it is totally fine to say (i), even if John was the *only* person who came.

- (i) Bu dui, John jiu lai le.
not correct John jiu come ASP
'No, John came.'

and the focused DP, together with the ad-foc *jiu* is fronted to satisfy the [+EPP] feature. The whole phrase can be further moved to the topic position and combine with a silent determiner in syntax. In that case, the ad-foc *jiu* gets a DP-level interpretation, giving rise to MSRs. Otherwise it gives rise to exclusive readings. Similarly, the adverbial *jiu* gives rise to MSRs when its associate is moved out of its scope and combines with the silent determiner in the topic position. With the sequence of type-shifts that are motivated by semantic composition, we are able to obtain these different readings.

One important feature of this proposal, built on Hole (2004) and Liu (2016), is that the adverbial *jiu* can have associates that are not c-commanded by *jiu* in the surface structure. The case with a subject associate and an object associate are represented by (56a) and (56b) respectively. The sentences are often used as responses to *which*-questions such as “which person doesn’t eat beef” or “which food doesn’t John eat”.

- (56) a. John_{CT} *t_i* jiu bu chi niurou.
 John jiu not eat beef
 ‘John, for example, doesn’t eat beef’. MSR
- b. Niurou_{CT_i} John jiu bu chi *t_i*.
 beef John not eat
 ‘Beef, for example, is something that John doesn’t eat.’ MSR

The phenomenon of the associate preceding the focus particle is reminiscent of what is called backwards association in the literature, which is first discussed by Jackendoff (1972). In English, *even* but not *only* can have backwards associates, i.e., associates that occur to the left of the focus particle.

Erlewine (2014) proposes that the contrast between *even* and *only* can be explained in terms of the ability of associating the lower copy of the focused phrase. Specifically, *even* can associate with the lower copy of the focus which is inside its scope, but *only* cannot. By assuming that the subject is base-generated inside the VP, I suggest that in Mandarin, the adverbial *jiu* is also able to associate with the lower copy of the focused phrase. Furthermore, when *jiu* associates with the lower copy, it functions like *even* and gives rise to MSRs.

Another aspect of this analysis is that does not need a blocking mechanism to account for

the distribution of different readings. This analysis does not predict an exclusive reading in post-associate *jiu* sentences or the multiple focus particle constructions. Hence no (exclusive) readings need to be ruled out from those constructions. On the other hand, this analysis predicts that the single ad-foc *jiu* construction, in the absence of the silent determiner, only gives rise to exclusive readings.

An additional advantage of this analysis is that it correctly predicts that if the silent determiner occurs, a single ad-foc *jiu* construction can give rise to MSRs. The MSRs in single ad-foc *jiu* constructions are wrongly blocked by the blocking mechanism.

As the silent determiner is crucial to MSRs in the sense that it is responsible for the non-exclusive part, I also suggest that the scalar implication associated with MSRs comes from an *even*-like inference. Besides the *jiu lian...dou* construction, it is an open question whether there exists a covert *lian...dou* in the other cases. As far as I can see, there is no harm in assuming a covert *dou* in Mandarin.

5 A remaining question

Among all the potential problems of my analysis, there is one I want to address, namely the non-distributivity of MSR discussed by Panizza & Sudo (2020). They propose that non-distributivity plays an important role in deriving MSR. In particular, only non-distributive predicates can trigger the plurality-forming type-shift that would nullify the exclusivity inference of *just*.

Unlike in Panizza & Sudo's (2020) analysis, in my analysis, the type-shift of the focused DP is independent of the predicate. I do not argue against their (non)-distributivity generalization about English, but it seems that this generalization does not hold in Mandarin. Even with a distributive predicate, it is possible to force a MSR-like reading, as exemplified in (57).

- (57) Jiu lian yi zhi mao dou zai fangjian li.
 jiu lian one CL cat dou in room inside
 'Even a cat is in the room.'

Imagine that you are trying to get into the room but are told that you are not allowed to. You say (57) to complain that it is ridiculous since even something that is as unremarkable as a cat is in the room. The MSR-like reading of (57) implies that anything that is more remarkable than the cat should be able to stay in the room. As such a reading is unavailable in the English sentence *Just one cat is the room*, it suggests that the non-distributivity generalization is language-specific.

Furthermore, the MSR in Mandarin can be either distributive or collective, as shown in (58).

- (58) *jiu lian John he Bill dou hui chu xin zhuanji.*
jiu lian John and Bill dou will release new album
 ‘Even just John and Bill will release a new album (individually).’
 ‘Even just John and Bill (together) will release an album.’

Under the current analysis, the subject, namely *John and Bill*, will undergo a type-shift and become *something that is equal to John and Bill*, which is equivalent to $\uparrow(j\oplus b)$. The alternative set we get will hence be equivalent to the following:

- (59) $\{\uparrow(j\oplus b), \uparrow(j), \uparrow(b), \uparrow(j\oplus b\oplus m)\dots\}$

Such an alternative set only predicts a collective reading: Even the group of John and Bill will release a new album. It remains unclear how to derive the distributive reading. This might have something to do with *dou*, since *dou* also has a distributor use. I leave for future research verifying this conjecture.

6 Conclusion

I started with the distribution of different readings of the focus particle *jiu* in Mandarin. The focus particle *jiu* can give rise to exclusive readings, scalar readings, and minimal sufficiency readings. I find that when *jiu* is in the ad-nominal position, it can give rise to either exclusive readings or MSRs. On the other hand, when *jiu* is adverbial, it gives rise to exclusive or

scalar readings when it precedes the associate, and MSRs when it follows the associate. The new observations about the MSRs of *jiu* and the range of constructions that *jiu* can appear in are difficult for the existing analyses of *jiu* to handle.

Drawing on the literature on MSRs in English, this paper provides a new theory of *jiu* to account for cases that are challenging for previous analyses. The new account shares the same unified semantics of *jiu* with Liu's (2016), but the syntax is different. In particular, *jiu* is divided into the adverbial particle *jiu* and the ad-foc marker *jiu*. The latter can apply DP-internally in the presence of a silent determiner which is in the topic position, giving rise to MSRs.

All in all, I have shown that there are both syntactic and semantic motivations for distinguishing the ad-foc *jiu* from the adverbial *jiu*. The proposed structure is capable of accounting for the puzzling distribution of *jiu* and the associated meanings. This project has provided a comprehensive investigation of *jiu*, highlighting the topic of MSR in Mandarin, which has never been connected to the literature on *jiu* before.

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